

Soudan Visitors' Guide

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1) How to find the Soudan Mine staff parking lot

The Soudan Mine head frame is visible from highway 169. Highway 169 runs North from highway 53, it is a right turn about 4 miles North of Virginia, assuming you are driving North on 53.

Arriving at Soudan from the South on highway 169:

Soudan is about 2 miles North of Tower. The Soudan mine staff parking lot is about a half mile from the place where you turn off route 169.

- Turn left at the corner where the iron ore car and Soudan Mine sign are located.
- Proceed up the hill past the Soudan Community Store. Keep to the right at the store.
- Travel straight ahead until you see a church on your right. You will turn left at the next intersection.
- You will spot the US post office on the left, then the MINOS surface building, head on up the hill.
- Near the top of the hill you will see a road into the park. Follow that road (a small house on the right is the Park office) continue up to the parking area.
- Park and walk to the head frame.

Arriving at Soudan from the North (from Ely) on highway 169:

The Soudan mine staff parking lot is about a half mile from the place where you turn off route 169.

- Turn right on Jasper Road at the Soudan Mine sign (an iron ore car is part of the display).
- Travel to the end of this road. You will see the US post office and the MINOS surface building directly ahead.
- Turn right up the hill.
- Near the top of the hill, you will see a road toward the left into the park. Follow that road (a small house on the right is the Park office) continue up to the parking area.
- Park and walk to the head frame.

Airlines serve Hibbing, Minnesota (about a forty five minute drive from Soudan), Duluth, Minnesota (about ninety minutes from Soudan), or Minneapolis, which is a four-hour drive.

2) When to arrive and what to do when you get there

You should plan to arrive at the beginning of the Monday morning day shift. Safety training will be held at that time. The Laboratory Safety Officer is Jerry Meier. He will be in charge of your safety training. Safety training for new arrivals will occur each Monday morning. Copies of the Soudan Underground Lab Safety Manual are available from our web site. **Safety is taken very seriously!**

Be at the head frame not later than 7:15 AM (check exact times before you arrive). Introduce yourself to Bill Miller, Jerry Meier or one of the Physicist Shift Leaders. They will get you checked in and provide a hard hat. Arrangements for safety training will be made at this time.

NOTE: These times will change from time to time. Check before you arrive!

- You must tag yourself “in” when you go under ground.
- You must tag yourself “out” when you are on the surface.

A designated cage rider will help with this procedure and be responsible for the riders on the cage.

You must wear a hard hat while in the cage, in the drift or at any other time that there is work overhead or under any circumstance when or where the Safety Officer proscribes it.

Expect to remain underground for a full ten hours!

3) Safety

The Soudan mine is a construction area, many potential hazards exist. You must become familiar with and comply with all safety regulations.

You will NOT operate any equipment without prior authorization and training (including the cranes, hoists, or forklift, and machine shop equipment).

Thou shalt not operate or tamper with various MINOS sub systems such as the DAQ or DCS systems unless you have been trained and authorized by the Lords of that particular system. This includes mechanical equipment, electrical equipment and electronic equipment.

We are not allowed to wander around or explore the drifts in the mine. Stay in the laboratory, you should not even go out to the shaft station without a designated cage rider. The cage may ONLY be operated trained personnel. A trained cage operator must be present before you to enter the cage.

4) Housing

Housing is very limited. You cannot just “arrive” and expect to find a place to live! One of the first things you must do when planning your trip to the mine is to call Eileen at 218 753 6611 or e-mail at Eileen@sudan.umn.edu for housing arrangements. DO NOT COME if you do not have a place to stay.

We have apartments for short term stays or houses for longer term stays (3 +months). They are rented on a first come first served basis. Rental includes weekly housekeeping (not including dish washing). All apartments are outfitted with complete kitchens, bedding and linen, cable TV, and LAN access. Payment charges vary depending on length of stay, apartments/houses may be rented by the day/week/month. Payments may be made directly by institution to the U of M physics department, by personal check, or by credit card. Credit card is the preferred method. If you pay by check, it should be made payable to the University of Minnesota.

Rental rates are per room and costs may vary depending on occupancy:

- **Daily** **\$45**
- **Weekly** **\$225**
- **Monthly** **\$600**

Another choice is Fortune Bay Resort and Casino (www.fortunebay.com). The address is 1430 Bois Forte Road, Tower, MN. The phone number is 218-753-6400 or 1-800-555-1714. Be sure to mention you are with MINOS and they will give you the \$45.00/night rate for weekdays. Follow the billboard signs along Hwy 169 before you get to Tower. Additional Housing and information about Ely, Minnesota is at www.ely.org. Ely is 22 miles North of Soudan on highway 169. Virginia, MN does not appear to have a similar web page. Virginia is about 22 miles South of Soudan on highway 169, then left four miles on highway 53.

Directions to Tower Tub Apartments:

The Tub apartments are located above the Laundromat at 316 Main Street in Tower. They are across from the Zup's grocery store and the car wash.

Directions to Simmons House (for CDMS use only):

Traveling north from Virginia on Hwy 169, turn left into Soudan at mile post 265 (it is also Hwy 1 at this point).

Go up a small hill, down the hill and up a little more (total distance about ¼ mile). You will see two churches on your right as you arrive at a stop sign. Turn right, almost immediately turn left, going up another incline. Turn right on Gordon Street. It is the first street to the right after your last left turn. The house address is 12 Gordon Street. The house is white and will be on your right. There are two bedrooms upstairs and separate living quarters in the basement.

If you do not turn on Gordon, but continue up the hill, you will see the MINOS surface building on the left in about two blocks. Keys are usually left in the black mailbox on the outside of the building next to the service door. Make sure you take the one for your housing and leave the extra keys behind for persons staying at other locations.

Directions to Ely House (for CDMS use only):

From Hwy 169, turn north on to 10th Avenue (that's a left turn if you are coming from Tower/Soudan). Turn right, after two blocks on to Madison Street. The house is a block and a half down, to the left. The address is 1127 Madison Street.

There are several sets of keys. They will be kept in a combination-padlocked mailbox at the house.

Contact People:

In the event that you have difficulties finding the property where you are to stay, or locating the keys, etc. – please contact:

If before 3:30 pm on a weekday - Eileen Amos at 218-753-6611,

If after 3:30 pm on a weekday - Bill Miller or Earl Peterson at 218-753-6611

If on the weekend or late at night - Bill Miller at home: 218-365-4711 or
Earl Peterson at home: 218-753-2394

General Information - Housing

1. The keys should be in the mailbox of the Surface Building: please return them when you leave
2. The units are cleaned once per week. Clean sheets and towels should be available in the closets. Please leave dirty sheets/towels in a neat pile in the bathroom closet floor. (Unless they're wet!)
3. The garbage will be removed once per week: if necessary, put tightly closed bags in the bins behind the Tower Tubs or use the dumpster at the Surface Building (key is on the peg board inside, bottom right).
4. Please buy the small things (soaps/paper towels/aluminum foil/etc.) and leave them for others. It will average out in our micro-communitistic community.

5. Please, please: throw out food that will spoil in weeks or earlier before you leave! Leave the rest, if you wish: any canned goods, noodles, spices, instant coffee etc. is fair game for any future residents. The same rule applies to freezer food. If you want to “keep” it, put a label on it – that MIGHT work.
6. Try to keep the units relatively mess-free. The cleaners will do a lot, but they may not visit before the next person arrives. Who wants to move into a pigsty?
7. Wash the dishes before you leave (one cup/one glass left is tolerable...).
8. Don’t make (too many) long-distance calls. We tolerate at the rate of \$20/month/visitor, but larger amounts will be billed in addition to the rent. Phone cards are MUCH cheaper – available at the Food and Fuel, among many other locations.
9. **Please pay Eileen before you leave. Options: personal checks, travelers checks, FNAL Budget codes and credit cards. Credit card is preferred. We cannot accept cash.**

5) Food

You must bring your own lunch underground. MINOS is charged 30 dollars for each cage trip and the cage is frequently not available for MINOS use. You will not be allowed to leave the mine for lunch.

Microwave ovens, pizza ovens, toaster oven and limited refrigerator space are available underground. Coffee or Soda Pop (i.e. Coke, etc.) may be purchased underground. Soda pop is dispensed by machine and requires 50 cents in quarters, nickels or dimes.

Groceries are available at the following local stores:

- Zup’s in Tower has most essential items. (The u in Zup’s is pronounced as the oo in loop.)
- Soudan Community Store has limited number of items available.
- Food and Fuel in Tower has a limited number of items available (open until 10 or 11pm).
- The Tower Bakery has freshly baked goods and very authentic Cornish Pasties (closed Wed. during the winter, always closed Sunday).

If you arrive after 6 PM you may have trouble finding a lunch for the next day (modulo Food/Fuel – mostly frozen pizzas). Your best bet is the Super One foods store in Virginia, which is open past 10 PM year round, or the Food and Fuel in Tower.

6) Restaurants

There are very few restaurants open in the Soudan area during the off tourist season (from Memorial Day in late May to Labor Day in late August). Restaurants, which are open year around and moderately near Soudan, are:

- The Black Bear (about 7 miles South on route 169) The Bear is an old Soudan 2 tradition. The Bear is open seven days a week.
- The Bench Warmer (South end of Tower)
- The Tower Café (in Tower)
- The Casino at Fortune Bay (South on 169 to highway 77, then follow the signs. It is about 7 miles from Soudan)
- The Giants Ridge Ski Resort has a year around full service restaurant. It is about 20 miles South of Soudan. Call before you go, they may be very busy or just choose to close on some nights. Phone 218-865-4151
- Excellent coffee and good but somewhat limited food is available at The Northern Grounds, 117 North Central in Ely.
- Holiday Inn in Ely

During the tourist season (basically June first to mid September), there are many more eating establishments available. A few of these summer restaurants are of extremely good quality. Possibilities include: The Chocolate Moose, Burntside Lodge, Vermillion Club, or the Mantel House. Check with the local folks.

Ely is 22 miles North of Soudan and has a few more choices in winter and many more during the tourist season (www.ely.org). Another possibility is Virginia about 25 miles South of Soudan. <http://virginiamn.areaguides.net/>.

7) Access

Underground access is extremely limited. You cannot go underground or leave from underground except at shift changes or via special arrangements made with authorized personnel. You must be tagged in while underground and tagged out when on the surface. We cannot accidentally leave anyone stuck underground. If you fail to tag yourself out, you will be called at your residence and be asked to return to the mine and tag yourself out.

8) Computing

Laptops:

The laboratory has a high speed internet connection. The housing units do too (expect occasional trouble). To use a laptop in the Laboratory, one needs to register the MAC address of the computer with Dave Saranen (saranen@sudan.umn.edu). There is also wireless available in the MINOS control room, CDMS offices, (soon) the lunch room, and the conference room (soon). A couple of PCs and NIC boxes are also available for visitors.

Accounts:

Before coming to Soudan visitors should make sure they have gotten and Fermilab User's ID, Fermilab computing (unix) account, a cryptocard, and Kerberos.

After that people should request an offline account if they plan an extended stay or looking at old runs, and an account on the gateway if they need to offsite access to run the detector. The accounts at Soudan can be set up through the following web page:

http://www.numi.fnal.gov/minwork/computing/soudan_accreq.html

9) Toilet facilities and potable water

Underground toilet facilities are a "porta-potty", much like you might see on an isolated construction site. We do not have potable running water underground. Potable bottled water is carried underground and is available.

10) Driving in Minnesota

Driving rules and regulations tend to be strictly enforced in the US. Obeying speed limits, stop signs, traffic lights, not driving while intoxicated etc. is important. Police do not have a sense of humor about violations! Driving while under the influence of alcohol is considered a very serious offense.

NOTE: Each state has its own rules with respect to driving. If you are going to drive in another state, check with the particular state you plan to visit. Many states have such information available on the web.

Automobile Drivers License Rules for Minnesota.

You do NOT need a Minnesota drivers license if your situation fits in one of the categories discussed in the next two paragraphs. This is a quote from the official Minnesota web site.

"Anyone traveling through or visiting the state of Minnesota who is at least 15 years old and has a valid driver's license issued by his/her home state or country. This includes those working for the United States Armed Forces (and their families) while they are stationed in Minnesota, regardless of the length of their stay.

"Any nonresident at least 18 years old who is temporarily in Minnesota, and whose home country does not require drivers to be licensed. This only applies if the motor vehicle he/she drives is legally registered for the current year in his/her home country. He/she may legally drive this vehicle in Minnesota for not more than 90 days in any calendar year without a valid license or permit."

Auto Insurance

When you rent/lease/hire a car you must have a certain minimum amount of automobile insurance. Minnesota State law requires this. If you have an accident with a rental car, you will probably be held responsible for the damage, even when the accident is not your fault. Ultimately, you may be reimbursed if the blame is assigned to another party involved in the accident. Adequate insurance removes this hassle. You should consider the insurance offered by the rental agency if you do not have good automobile insurance from home. The insurance offered by the agency will be expensive.

If you buy a car, you will be responsible for taxes and car insurance. Taxes depend on the value of the car, but can run to a few hundred dollars per year. Auto insurance depends on circumstances, but could be as much as 100 per month. You do not need a social security number for anything associated with a car. An exception might occur if you apply for a loan to buy a car.

11) Medical

You do not need to register with health authorities.

If you need a dentist or doctor, either ask one of the locals or look in the phone book. There are no routine medical facilities in Tower/Soudan. A dentist and a physician are available on some days of the week. Emergency care is always available through 911, as described below.

The nearest hospitals are in Ely to the North or Virginia to the South. Either facility is about 25 miles from Tower/Soudan. Large regional hospitals are available in Duluth about 90 miles away.

It is generally true that medical care in the US is quite good. It is also very expensive. The dollar cost of medical care can be mind-boggling. It is imperative that you obtain medical insurance or such from your home country prior to entering the US. You are not insured just because you are working in the experiment.

If an emergency arises dial 911. In principle, the 911 operators know the location of the telephone you are using and can direct aid to you. However, this is not always the case, so try to have an address or location description available. If you have a medical emergency an aid car with trained emergency medical technicians will be quickly dispatched to you.

The emergency number 911 is for all emergencies, fire, police, or accident. This system is quite effective. If you are seriously concerned about an emergency, you should not hesitate to dial 911. The police will not be involved unless their presence is required by the nature of the emergency.

12) Banking and Money

There is a bank in Tower. Accounts are fairly easy to open.

ATM machines are practically everywhere. Most ATM's charge a dollar or two for each cash withdrawal, but it is by far the easiest way to keep your pocket full of cash.

Most local establishments take VISA or MasterCard.

13) Social Security Number

A social security number is not required unless you are an employee of a US organization. (You are going to pay US federal income tax in this case.) The US post office can supply you with an application form, if you need to apply for a number.

14) Immigration and Customs

When going through immigration at your port of entry to the US, you will be asked what you will be doing here. DO NOT say you are coming here to work! As is true in most countries, entering the US to work and replace local workers is a red flag issue. You want to avoid this. Don't lie, but some responses that are less likely to raise red flags are; coming to Sudan to assemble a device designed in your home institution, training US technicians on installation and operation of a device or instrument or even just to visit. Basically, you are here to assist or train US workers in some new task or installation, not here to replace US workers. Talk to people that has visited the US for similar tasks.

Registration

No registration of any kind is required after you leave US immigration at your point of entry.

15) Weather and Dress

In the Mine

The temperature in the drifts is about 55°F. In the halls, it is roughly room temperature. The ride down the shaft can get your clothes dirty. Layering is a good idea.

Above Ground

Local weather forecasts for Ely are on the web at a few locations (e.g. <http://www.weather.com/weather/local/USMN0235>). For reference, here are the average high and low temperatures for a few selected modules.

Mid January:	15°F & -6°F
Late March:	35°F & 16°F
Late April	50°F & 27°F
Early June	69°F & 45°F
Early August	77°F & 56°F
Late September	55°F & 37°F

These are typical temperature but 20°F variations from these values are also typical. Cold weather can happen most of the year. Expect snow from late October through early April. Do not be surprised by snow in September or May.

16) Transportation

Air travel to the mine

Usually air travels arrive at the mine from Minneapolis/St. Paul (MSP, 220 miles away), from Duluth (DLH, 90 miles away), or from Hibbing (HIB, 60 miles away). Northwest Airlines (NWA) operates regional flights to Hibbing from MSP, NWA and American fly to Duluth, and most air carriers fly to MSP.

Surface Travel

The distance from Tower to the mine is about two miles. Walking is a possibility. However for almost everything else access to a car is required. Fortunately, much of the time, there are enough visitors with vehicles to provide transport to restaurants and grocery stores. Having your own car is not an absolute necessity.

17) Local/Mine Jargon: a glossary

- Boat - Another word for the cage (e.g. don't miss the...)
- Cage - A car used to move people and equipment underground at the mine.

- Cage rider - A trained cage operator.
- DNR - The Minnesota Department of Natural Resources (also known as The State Park). They own and operate the Mine.
- Drift - A tunnel in the mine
- Hoist - The hoist is what pulls on the cable and moves the cage.
- Headframe - The Steel structure on the surface above the mineshaft.
- Physicist shift leader - The supervisor and coordinator for all physicists in Soudan and in charge of coordinating the installation with the mine crew (with the Soudan Supervisor, Bill Miller).
- Shive - The main wheel that holds the cage's cable. (Pronounced shiv, as in shiver.)
- Tub - The Tower Tub apartments located above a Laundromat in Tower.
- Day shift - Starts roughly at 7:30 am and runs until 5:30pm.
- Afternoon shift - Starts after the day shift (5:30 pm) and ends around 3:30 am (staffed during MINOS installation).
- Night shift - Starts just before midnight and ends about 7am. (Not usually operated in Soudan).

18) Some Important Phone Numbers, Addresses and People

Underground:	218-753-6611
	218-753-6904. (FAX)
MINOS Surface Building: Voice	218-753-8990
	218-753-8920 (FAX)
Physicist Shift Leader House:	218-753-5075

For US Postal Service:
 Soudan Underground Laboratory
 P.O. Box 175
 Soudan, MN 55782

For Federal Express and UPS:
 MINOS Surface Bldg
 41 First Street
 Soudan, MN 55782

Bill Miller (Soudan)	- Soudan Laboratory Supervisor
Jerry Meier (Soudan)	- Soudan Laboratory Safety Officer
Eileen Amos (Soudan)	- Office Manager
Jack Zorman (Soudan)	- Surface Building Foreman
Earl Peterson (Minnesota)	- Soudan Laboratory Director, shift leader (?)
Jeff Nelson (Fermilab/Minnesota)	- MINOS Far Detector Installation Manager
Dave Ayres (Argonne)	- MINOS Far Detector Installation Manager
Louie Barrett (Western Washington)	- Physicist Shift Leader extraordinaire
Bob Webb (Texas A&M)	- Physicist Shift Leader emeritus
Dave Boehnlein (Fermilab)	- Physicist Shift Leader
Tim Bergfeld (South Carolina)	- Physicist Shift Leader
Sergei Avvakumov (Stanford)	- Physicist Shift Leader